

Amendments to the Claims

Please amend claims 1, 8 and 15. The currently pending claims after amendment are listed below.

1. (Currently Amended) A method for externally managing data within an asynchronous pipeline, wherein said asynchronous pipeline includes a plurality of pipeline stages, and a data path and a control path traversing said plurality of pipeline stages in unison, said method comprising:

- assigning a respective data tag value to each of a plurality of data sets, each said data set for input to said asynchronous pipeline in a respective input interval;
- sending each said respective data tag value into said control path when said data set to which the respective data tag value is assigned is sent into said data path such that said respective data tag value passes through each successive stage of said plurality of stages of said asynchronous pipeline in unison with said data set to which the respective data tag value is assigned, each said respective data tag value always being in the same pipeline stage as the data set to which the respective data tag value is assigned; and
- comparing each said data tag value with a respective control tag value associated with a given stage of said asynchronous pipeline; and
- in response to a data tag value matching a respective control tag value, permitting said matching data tag value and the data set to which said matching data tag value is assigned to pass in unison to a next stage within said asynchronous pipeline.

2. (Previously Presented) The method of claim 1, wherein said step of assigning a respective data tag value comprises associating a respective encoded binary sequence with each said data set.

1 3. (Previously Presented) The method of claim 2, wherein said comparing step further
2 comprises decoding said encoded binary sequences to identify said data tag values.

1 4. (Previously Presented) The method of claim 1, further comprising delivering each said
2 data tag value to a processor that is in communicative contact with said given stage.

1 5. (Previously Presented) The method of claim 4, further comprising:
2 assigning a respective control tag value with respect to each said data tag value; and
3 delivering said control tag values from said processor to said given stage.

1 6. (Previously Presented) The method of claim 4, wherein said given stage includes a logic
2 function for processing said data sets, said method further comprising:
3 determining whether or not each said respective control tag value matches each said data
4 tag value; and
5 in response to determining that a control tag value matches a data tag value, delivering a
6 control instruction from said processor to said logic function.

1 7. (Previously Presented) The method of claim 1, wherein said assigning step further
2 comprises:
3 receiving said data sets at the front-end of said asynchronous pipeline; and
4 associating said data tag values with said data sets within a memory device.

1 8. (Currently Amended) A system for externally managing data within an asynchronous
2 pipeline, wherein said asynchronous pipeline includes a plurality of pipeline stages, and a data
3 path and a control path traversing said plurality of pipeline stages in unison, said system
4 comprising:

5 processing means for assigning a respective data tag value to each of a plurality of data
6 sets, each said data set for input to said asynchronous pipeline in a respective input interval;

7 processing means for sending each said respective data tag value into said control path
8 when said data set to which the respective data tag value is assigned is sent into said data path
9 such that said respective data tag value passes through each successive stage of said plurality of
10 stages of said asynchronous pipeline in unison with said data set to which the respective data tag
11 value is assigned, each said respective data tag value always being in the same pipeline stage as
12 the data set to which the respective data tag value is assigned; and

13 logic means for comparing each said data tag value with a respective control tag value
14 associated with a given stage of said asynchronous pipeline, and in response to a data tag value
15 matching a respective control tag value, permitting said matching data tag value and the data set
16 to which said matching data tag value is assigned to pass in unison to the next stage within said
17 asynchronous pipeline.

1 9. (Previously Presented) The system of claim 8, wherein said processing means for
2 assigning a respective data tag value comprises processing means for associating a respective
3 encoded binary sequence with each said data set.

1 10. (Previously Presented) The system of claim 9, further comprising logic means for
2 decoding said encoded binary sequences to identify said data tag values.

1 11. (Previously Presented) The system of claim 8, further comprising processing means for
2 delivering each said data tag value to a processor that is in communicative contact with said given
3 stage.

1 12. (Previously Presented) The system of claim 11, further comprising:
2 processing means for assigning a respective control tag value with respect to each said data
3 tag value; and
4 processing means for delivering said control tag values from said processor to said given
5 stage.

1 13. (Previously Presented) The system of claim 11, wherein said given stage includes a logic
2 function for processing said data sets, said system further comprising:
3 logic means for determining whether or not each said respective control tag value matches
4 each said data tag value; and
5 processing means responsive to a control tag value matching a data tag value for delivering
6 a control instruction from said processor to said logic function.

1 14. (Previously Presented) The system of claim 8, wherein said processing means for
2 assigning a data tag value to said data further comprises:
3 processing means for receiving said data sets at the front-end of said asynchronous
4 pipeline; and
5 processing means for associating said data tag values with said data sets within a memory
6 device.

1 15. (Currently Amended) An asynchronous pipeline apparatus for a digital data processing
2 system, comprising:

3 plurality of ordered stages traversed in parallel by a data path and a control path, said data
4 path transmitting data sets through successive said ordered stages of said pipeline, each data set
5 entering said pipeline in a respective input interval, said control path transmitting data tags
6 through successive said ordered stages of said pipeline, each data tag corresponding to a
7 respective data set, each data tag being transmitted through each successive said ordered stage of
8 said pipeline in unison with its corresponding data set, each said data tag always being in the same
9 ordered stage of said pipeline as its corresponding data set; and

10 stage advance control logic which controls the advancing of each said data set and its
11 corresponding data tag through successive said ordered stages of said asynchronous pipeline, said
12 stage advance control logic allowing each data set and its corresponding data tag to advance from
13 a current stage to a successor stage upon satisfaction of a respective logical stage transition
14 condition associated with each stage transition, wherein for at least some stage transitions, said
15 logical stage transition condition includes the condition that the data tag at the current stage
16 matches a control tag value associated with the stage transition.